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Foot Rot

Don Hudson, D.V.M., Extension Veterinarian

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Foot rot (necrotic pododermatitis, foul foot) can be a very annoying problem. Once started in a herd and "seeded" in the soil, it may persist for quite a long time. Although the incidence of foot rot may not be high at any one time, it requires constant observation to prevent serious economic loss.

The bacterium *Fusobacterium necrophorum* has been reported to cause foot rot. However, researchers have not been able to reproduce typical foot rot lesions with this organism.

Recent research at the University of Missouri indicates that a combination of *Fusobacterium necrophorum* and *Bacteroides melaninogenicus* are the predominant bacteria isolated from foot rot. When mixtures of these two bacteria were applied to the broken skin of the foot or injected into the tissue between the toes, typical lesions of foot rot were reproduced. Both bacteria were re-isolated from the experimentally-induced lesions.

Other organisms commonly isolated from animals with foot rot include streptococci, staphylococci, corynebacterium, and various fungi, all of which are common in our environment, especially where moisture is present. Cuts, bruises, puncture wounds, or severe abrasions permit these bacteria to enter the tissue of the foot where they start an infection.

Foot rot can be a seasonal disease, occurring during periods of extreme moisture, sudden freezing of muddy yards, or severe drought.

Clinical Signs

The first observed sign of foot rot is lameness, which may vary from scarcely noticeable to severe in one or more feet. Foot rot may affect only one animal or a high percentage of animals in a pen or herd. If a single animal is showing signs of lameness, examine the foot. Often the cause may be nails, wire, bruising or other injuries.

Lameness caused by acute foot rot is followed by swelling of the foot, spreading of the toes and reddening of the tissue above the hoof. In severe cases, the foot will abscess above the hoof with a discharge that has a characteristic foul odor. The animal usually has an elevated temperature with loss of appetite and body weight.

If the infection is not stopped, it will invade the deeper tissues of the foot and may invade one or more joints, causing chronic arthritis.

Prevention

Management practices that help reduce hoof damage or avoid bruising will help decrease the incidence of foot rot. Keep the hooves of heavy cows and bulls trimmed to help reduce stress on the soft tissue of the foot.

Maintaining maximum drainage of lots and around water tanks to prevent mud helps reduce the incidence of foot rot. In winter when rough ground freezes around water tanks, the feet become bruised and this may lead to a higher incidence of foot rot. These areas can be smoothed with a blade or covered with straw to prevent foot damage.

Mounds of soil in the feedlot help to promote drainage and give cattle a dry place to lie. Cement slabs along the feed bunks and around water tanks reduce injuries and help prevent muddy conditions in the winter.

Walk-through foot baths in dairy operations have been used to help prevent foot rot. Copper sulfate (dissolve 2 pounds in 5 gallons of water) or formalin (1 gallon of 40 percent formalin in 9 gallons of water) can be placed in the door or alleyway where the cattle walk coming into the barn. Place shavings soaked in these solutions in the alley where the cattle walk to help prevent slipping. These are more effective if the feet are not muddy and the concentration of medication is maintained. However, these solutions may cause chapping or cracking of the teats if not washed off at milking.

Ethylene diamine dihydriodide (EDDI, tamed iodine) mixed in the feed or salt to provide 50 milligrams per head per day has been used as a preventative measure. However, feeding EDDI has not been a very satisfactory control for foot rot. Over-consumption of the chemical can cause irritation of the respiratory tract. This may lead to pneumonia, hacking cough, depressed appetite and watery eyes.

Good nutrition may be helpful in preventing foot rot. Be sure that all cattle receive adequate calcium, phosphorus, and vitamin A for good bone and tissue health.

Treatment

Research reports from Missouri indicate that when treatment was administered the first day of the disease, recovery was observed in 3 to 4 days. When the first treatment was delayed for 3 days, treatment was required again at 7 days, recovery was delayed for 10 to 12 days, and two animals required 30 to 45 days with multiple treatments to recover.

Early treatment is necessary to prevent animals from becoming chronics. Examine the feet of lame animals for foreign objects such as wires, nails, etc., and treat as soon as possible. Penicillin, penicillin dihydrostreptomycin combinations, or the oxytetracyclines (terramycin, liquamycin, and oxy-tet) usually work well if given at the recommended dosage and treatment is started early. Sulfonamides (sulfapyridine, sulfamethazine, or triple sulfas) have been used successfully at 1 grain per pound of body weight. These can be given intravenously or as a bolus. The boluses given simultaneously with penicillin or oxytetracycline for 3 days are probably the best overall treatment.

The new, long-acting terramycin injectable and sustained release sulfa boluses used in combination are good drugs for treating foot rot. Treatment with these drugs must be given once every 3 to 5 days to maintain adequate blood levels. In many early cases of foot rot, one treatment may be adequate.

Feed additives containing chlortetracycline (aureomycin) or a combination of chlortetracycline and sulfamethazine can be used for treatment on a herd basis. To be effective, the minimum dose for calves should be at least one gram of chlortetracycline per animal per day. Increase the amount of antibiotic for larger animals. Lower dosages may contribute to the production of drug-resistant organisms.

When foot rot fails to respond to medication, thoroughly check the foot for foreign objects. If infection proceeds and infects the joints, arthritis may develop and claw amputation may be needed to correct the condition until the animal can be salvaged at slaughter.

All treatments should be under the direction of a veterinarian. Observe the withdrawal time on all medications administered.



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